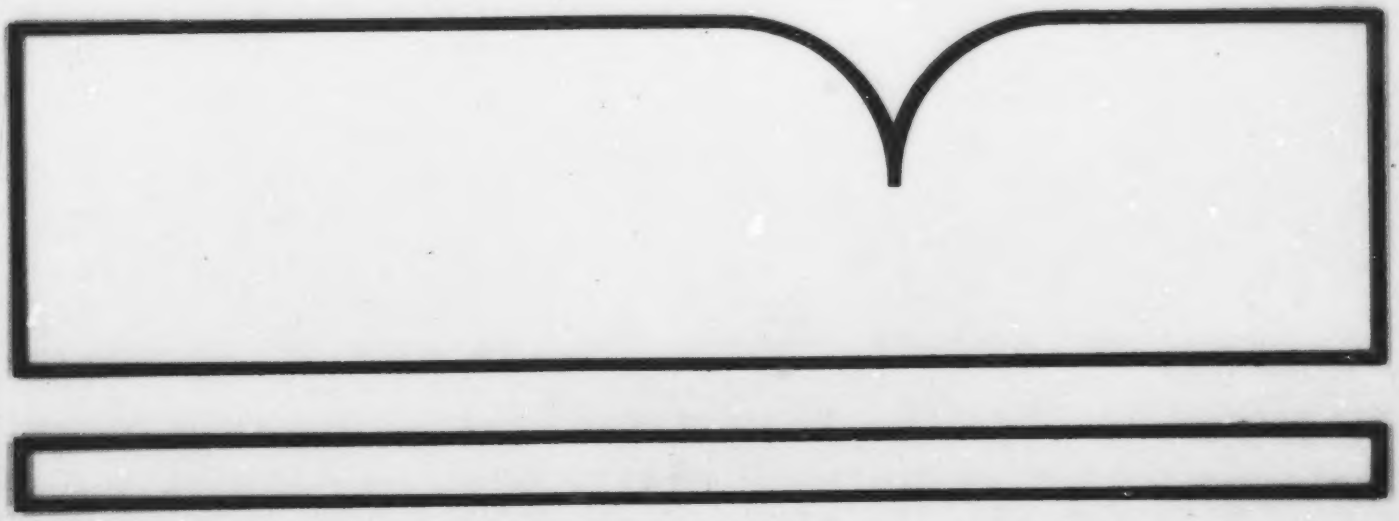
PB85-213932

Superfund Record of Decision (EPA Region 5) New Brighton Site, Minnesota (Interim Water Treatment), June 1983

(U.S.) Environmental Protection Agency
Washington, DC

24 Jun 83



U.S. Department of Commerce
National Technical Information Service
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United States
Environmental Protection
Agency

Office of
Emergency and
Remedial Response

EPA/ROD/R05-83/005
June 1983

PB85-213932

EPA

Superfund Record of Decision:

New Brighton Site, MN (Interim Water Treatment)

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TECHNICAL REPORT DATA
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1. REPORT NO.	2.	3. RECIPIENT'S ACCESSION NO.
EPA/ROD/R05-83/005		PB85 213932/AS

4. TITLE AND SUBTITLE	5. REPORT DATE
SUPERFUND RECORD OF DECISION: New Brighton Site, MN (Interim Water Treatment)	06/24/83 6. PERFORMING ORGANIZATION CODE
7. AUTHOR(S)	8. PERFORMING ORGANIZATION REPORT NO.
9. PERFORMING ORGANIZATION NAME AND ADDRESS Same as box 12.	10. PROGRAM ELEMENT NO. 11. CONTRACT/GRANT NO.
12. SPONSORING AGENCY NAME AND ADDRESS U.S. Environmental Protection Agency 401 M Street, S.W. Washington, D.C. 20460	13. TYPE OF REPORT AND PERIOD COVERED Final ROD Report 14. SPONSORING AGENCY CODE 800/00

15. SUPPLEMENTARY NOTES

16. ABSTRACT

The municipal drinking water wells in the City of New Brighton/Arden Hills were found to be contaminated with volatile organic solvents in June 1981. The City opened two new wells in 1982 to reach a lower non-contaminated water aquifer. Since discovery of the contamination, the levels of hazardous substances have increased in the remaining undeepened municipal wells. The city is presently drilling two additional deeper wells. However, these new wells will not be available until the end of the year. Despite water restrictions, anticipated summertime peak demands for water will not be met without drawing water from contaminated wells.

The cost-effective initial remedial measure (IRM) selected for this site is treatment of the New Brighton/Arden Hills wells #5 and #6 with granular activated carbon to meet anticipated peak summertime demands. The capital cost for this IRM is estimated to be $150,400 and O&M costs are $30,526 for four months.

Key Words: Granular Activated Carbon (GAC), Potable Water Supply, DOD, Federal Facilities, Off-Base Contamination, Fire Protection

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Record of Decision: New Brighton Site, MN (Interim Water Treatment) Contaminated media: gw Key contaminants: VOCs, solvents, TCE		

18. DISTRIBUTION STATEMENT	19. SECURITY CLASS *(This Report)*	21. NO. OF PAGES
	None	20
	20. SECURITY CLASS *(This page)*	22. PRICE
	None	$7.00

EPA Form 2220-1 (Rev. 4-77) PREVIOUS EDITION IS OBSOLETE

ROD ISSUES ABSTRACT

Site: New Brighton/Arden Hills, Minnesota

Region: V

AA, OSWER
Briefing Date: June 24, 1983

SITE DESCRIPTION

The municipal drinking water wells in the City of New Brighton/ Arden Hills were found to be contaminated with volatile organic solvents in June 1981. The City opened two new wells in 1982 to reach a lower non-contaminated water aquifer. Since discovery of the contamination, the levels of hazardous substances have increased in the remaining undeepened municipal wells. The city is presently drilling two additional deeper wells. However, these new wells will not be available until the end of the year. Despite water restrictions, anticipated summertime peak demands for water will not be met without drawing water from contaminated wells.

SELECTED ALTERNATIVE

The cost-effective initial remedial measure (IRM) selected for this site is treatment of the New Brighton/Arden Hills wells #5 and #6 with granular activated carbon to meet anticipated peak summertime demands. The capital cost for this IRM is estimated to be $150,400 and O&M costs are $30,526 for four months.

ISSUES AND RESOLUTIONS

1. A fast-track RI/FS was conducted to assess alternatives to provide the City with potable water to meet anticipated summertime peak demands. The FS recommended a hydraulic connection with a neighboring community's water system. The City objected due to taste and odor problems with the nearby system and requested that granular activated carbon (GAC) be used for treating the contaminated wells. As a result the cost estimate for carbon treatment was reevaluated. Based on new information from the prospective suppliers of the treatment system, the revised costs were estimated to be essentially the same as a connection to the nearby water system. Therefore, the feasibility study was amended and carbon treatment was recommended.

KEY WORDS

- Granular Activated Carbon (GAC)
- Potable Water Supply

ISSUES AND RESOLUTIONS	KEY WORDS
2. Fund-financed response actions are not authorized for releases from Federal facilities. The Twin Cities Army Ammunition Plant, a Federal facility, is one of several potential sources of contamination. However, fund-financed response actions were authorized because it has not been determined that the problems addressed in the IRM originate from the Federal facility.	. Federal Facilities

JUN 24 83

RECORD OF DECISION
Initial Remedial Measure

SITE: New Brighton/Arden Hills Site
New Brighton, Minnesota

ANALYSIS REVIEWED:

I have reviewed the following documents describing the analysis of cost-effectiveness of remedial alternatives at the New Brighton/Arden Hills Site:

- Remedial Action Master Plan, New Brighton, CH_2M Hill, January 29, 1983.
- Focused Remedial Investigation/Feasibility Study, New Brighton, CH_2M Hill, May 29, 1983.
- Resolution of the City Council of New Brighton No. 83-69, May 24, 1983.
- Staff summaries and recommendations.

DESCRIPTION OF SCHEDULED OPTION:

- Interim Water treatment system for the City of New Brighton wells #5 and #6 for peak demand periods for the summer using granular activated carbon (project duration 4 months).

DECLARATIONS:

Consistent with the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), and the National Contingency Plan (40 CFR Part 300), I have consulted with the State of Minnesota prior to determining the appropriate remedial action. I have determined that the granular activated carbon treatment for the New Brighton Site is a feasible and cost-effective remedial action necessary to protect public health and the environment. I have also determined that the action being taken is appropriate when balanced against the resources available in the Trust Fund and the need to respond at other sites.

Lee M. Thomas
Acting Assistant Administrator
Office of Solid Waste & Emergency Response

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

June 22, 1983

OFFICE OF
GENERAL COUNSEL

MEMORANDUM

SUBJECT: New Brighton/Arden Hills Site

FROM: Lisa K. Friedman
Associate General Counsel
Solid Waste & Emergency Response
Division (LE-132S)

TO: Lee M. Thomas
Assistant Administrator for Solid Waste
and Emergency Response (WH-562A)

I concur in your decision to undertake an initial remedial action (IRM) at the New Brighton/Arden Hills site on the following condition: that the Agency has not determined that the problems to be addressed by the IRM result from a release from a Federally-owned facility.

New Brighton/Arden Hills Site
Remedial Action
Briefing Document

Purpose of this briefing is to obtain AA approval for the initial remedial measure recommended by the Region and the State for the New Brighton/Arden Hills Site. A "Record of Decision" has been prepared to document the approval.

The New Brighton/Arden Hills Site is contaminated with volatile organic solvents found in drinking water. The plume has spread over approximately 18 square miles potentially contaminating the drinking water supplies of 48,000 residents. Source(s) for the contamination have not been positively identified.

This contamination was found in New Brighton's municipal drinking water wells in June 1981. The City of New Brighton deepened two city wells in 1982 to reach a lower noncontaminated water aquifer. Since discovery of the contamination, the levels of hazardous substances have increased in the undeepened municipal wells. The City of New Brighton is presently drilling two additional deeper wells. Although this program is progressing as fast as possible, these new wells will not be available until late this year.

Despite water restrictions, anticipated summertime peak demands for water will not be able to be met without drawing water from contaminated wells. The New Brighton water system does not blend the water as it is pumped from the municipal wells; therefore, the contaminated ground water will not be diluted by blending with uncontaminated water.

The City engineer of New Brighton estimates that an additional 2 million gallons per day (mgd) capacity will be required to meet peak summer demands, although normal use should require only an average of 1 mgd. Recognizing the need for expeditious remedial action, EPA conducted a fast-track RI/FS to assess available alternative actions.

CH_2M Hill completed a RI/FS in May 1983. Three alternatives were considered:

Hydrologic connection to a Minneapolis water reservoir	$185,209	2-3 weeks for implementation
Treatment of New Brighton municipal wells #5 and #6 with granular activated carbon	$180,926	2-3 weeks for implementation
Treatment of New Brighton municipal wells #5 and #6 with air stripping	$144,865	6-7 weeks for implementation

The costs noted above include the present worth cost of both capital and O & M costs for the project life which is four (4) months.

A public meeting was held in New Brighton, Minnesota on May 23, 1983. Approximately 40 people attended. The State presented a brief background on what is known about the contamination problem. The CH_2M Hill Project Officer presented a summary of results and the recommended initial remedial measure to those in attendance for review and comment. The recommended alternative was connection to the Minneapolis water supply. There was some concern among those present regarding the pipeline connection to Minneapolis due to perceived taste and odor problems with this water during summer months. U.S. EPA informed the public that additional comments could be submitted during the two-week period following the meeting. Copies of the feasibility study were made available to the public on May 26, 1983. The two-week public comment period ended on June 9, 1983. The only written comment received was a resolution from the City Council of New Brighton (See Attachment D). The resolution requested treatment of the New Brighton wells with granular activated carbon.

Based on consideration of public comments and review of the CH_2M Hill FS and addendum (copy attached), EPA has determined that granular activated carbon (GAC) treatment of the municipal water wells # 5 and # 6 is the appropriate initial remedial measure to be implemented. The Regional Office of Drinking Water, the Minnesota Pollution Control Agency, the Minnesota Department of Health and the City of New Brighton concur in this decision.

The installation of GAC constitutes one part of the IRM. Private drinking wells and the City of St. Anthony will be addressed later in a separate Record of Decision.

This "Record of Decision" certifies that:

- The selected initial remedial measure is a cost-effective remedy for the site.

- The selected initial remedial measure will effectively protect the public health.

- Monies are available in the Fund to finance the remedy.

Presently there is no enforcement action on-going with this site. Letters were sent to potential responsible parties on June 6,1983 notifying the parties of the recommended IRM and giving them seven (7) days to inform U.S. EPA if they wish to perform this IRM.

The following actions are required to move this IRM into construction:

- Approve recommended IRM AA, OSWER

- Enforcement release — U.S. EPA - Region V
  Notification time (7 days) to potential responsible parties

- Approve proposed cooperative agreement - Awarded June 17, 1983

Design IRM — U.S. EPA - Region V
Construct IRM — U.S. EPA - Region V

Remedial Implementation Alternative Selection
New Brighton/Arden Hills Site
New Brighton, Minnesota
June 3, 1983

HISTORY

The New Brighton/Arden Hills Site is located immediately north of Minneapolis/ St. Paul, Minnesota (See Attachment A). In June 1981, the Minnesota Pollution Control Agency (MPCA) and the Minnesota Department of Health (MDH) found solvent contamination of the groundwater used for drinking water in the City of New Brighton and surrounding communities. More than 150 area wells have been sampled by the State of Minnesota, the U.S. EPA Field Investigation Team (FIT), and Army contractors. Fifteen volatile organic priority pollutants were found. Although the major contaminant is trichloroethylene (TCE), each well contaminated by TCE is typically also contaminated with other volatile organic chemicals. Contaminant concentrations occur at levels warranting serious concern over potential adverse impacts upon public health. MDH has ordered several municipal and private wells closed. Retests, although few in number, have indicated increasing concentrations of some contaminants. The U.S. Army is a potential source of contamination at the site. However, the RI/FS has not been completed and it is not possible to determine that the problems at New Brighton result from a release from a federal facility.

The most probable source(s) of the groundwater contamination lies within Ramsey County, northeast of the City of New Brighton, a suburb of the Twin Cities. The identified plume of contaminated groundwater underlies approximately 18 square miles of Ramsey and Hennepin Counties. Several potential sites have been identified so that each may be the primary and/or a contributing source of the contamination.

A draft Remedial Action Master Plan (RAMP) for this site was prepared and submitted to U.S. EPA Region V in late 1982. On May 2, 1983, a feasibility study for a temporary water supply for the cities of New Brighton and St. Anthony and several private homes on private wells was authorized by U.S. EPA Headquarters. A preliminary site investigation by the feasibility study contractor (CH_2M Hill), MPCA, and the regional U.S. EPA Project Officer was conducted on May 9 to 11, 1983. Discussions with City officials and MPCA staff indicated that, of the three study areas, New Brighton had the most immediate need for a temporary, drinking water source to augment existing supplies over the peak (summertime) demand period. Without temporary augmentation in New Brighton starting in June, either: (1) severe water pressure drops could occur in the City distribution system due to inadequate supply, thereby creating a significant risk in the event of a major fire, or (2) contaminated wells would have to be pumped, thereby violating an MDH ban on their use and exposing the population to a contaminated water source.

Because New Brighton's need is immediate compared to the other two study areas, the feasibility study addressed only New Brighton. The other study areas will be addressed in later feasibility

CURRENT STATUS

Prior to June 1981, New Brighton operated eight municipal wells, designated Wells 2 through 9. Contamination was detected in all wells but in significantly varying degrees. In response to a MDH order, the City embarked on a program to provide residents with a noncontaminated water supply. Following a comprehensive study by the City, they concluded that the best long-term solution was to deepen existing wells into the noncontaminated Mt. Simon/ Hinckley aquifer where possible, and/or develop new wells into this formation if necessary. Wells 8 and 9 have already been deepened. Wells 2 and 7 have trace levels of contamination. Wells 2, 7, 8, and 9 are currently in service and supply a total capacity of 5.1 mgd. However, during the summer peak-use period (June 1 to October 1), maximum daily water demands run as high as three times the average daily rate, or 7.5 mgd. Consequently, City engineers are projecting a summer peak period shortfall of approximately 2.4 mgd. The construction of Wells 10 and 11, originally planned for startup in early 1983, has been delayed due to unforeseen drilling problems. It is believed however that these wells will be producing by late 1983.

In discussions with New Brighton City engineers, and a review of historical water demands, it has been agreed that a temporary summertime water augmentation of approximately 2.0 mgd will provide the City with enough capacity to meet their peak requirements and that an average quantity of 1 mgd will be required. Further, if treatment and use of an existing well source is to be considered, the only likely candidates are Wells 5 and 6 due to their capacity (2.2 mgd total), location, and ability to integrate a treatment system quickly. Wells 5 and 6 are currently used only for emergency standby since the contamination levels in the wells exceed State standards.

The feasibility study and addedum published by CH_2MHill in May 1983, identified three alternatives as an initial remedial measure for the New Brighton/Arden Hills Site as follows:

Hydrologic connection to a Minneapolis water reservoir	$185,209*
Treatment of New Brighton Municipal Wells #5 & 6 with granular activated carbon	$180,926*
Treatment of New Brighton Municipal Wells #5 & 6 with air stripping	$144,865* +

* (Present worth cost for capital and O&M costs for life of the project - 4 months).
\+ Implementation would take 6-7 weeks as compared to 2-3 weeks for the other alternatives.

Each of the alternatives summarized above would provide adequate protection of public health, welfare and the environment.

On May 23, 1983, at a public meeting in New Brighton, Minnesota the findings and recommendations of the CH_2M Hill report were presented by the CH_2M Hill Project Officer. MPCA, MDH, and U.S. EPA Region V were also at the meeting. The residents in attendance raised objections to the use of Minneapolis water due to perceived taste and odor problems. Members of the City Council of New Brighton also share this concern. The Minneapolis water according to MPCA files does have trace amounts of contaminants in it.

Following the public meeting, the feasibility study was made available to the public for a comment period of two weeks. The feasibility study was sent to U.S. EPA Headquarters for review prior to release. Regional Counsel and the Regional Response Branch also reviewed the feasibility study. The City of New Brighton and MPCA also reviewed and commented on the feasibility study prior to public release. Based on review of all available data, findings, recommendations of current and past technical studies, and public comments, the Region (in concurrence with the Regional Office of Drinking Water Quality) recommend approval of treating wells No. 5 and 6 using granular activated carbon. The system would utilize 80,000 pounds of virgin activated carbon approved for potable water service. The system would provide 13 minutes contact time at a total design flow rate of 1500 gpm. The length of the project is 4 months. Total capital costs and O&M costs are shown in Attachment B. Testing of the water for water quality will be done by the City of New Brighton.

RECOMMENDED ALTERNATIVE

Section 300.68(e)(1) of the National Oil and Hazardous Substances Contingency Plan (NCP) states that initial remedial measures should be taken when they are determined to be feasible, cost-effective, and necessary to limit exposure to a significant health hazard. Based on our evaluation of the cost-effectiveness of each of the proposed alternatives, the comments received from the public and the City Council of New Brighton, information from the State (MPCA and MDH) and from the Regional Office of Drinking Water, we have determined that the IRM utilizing granular activated carbon meets the NCP criteria.

PROPOSED ACTION

We request your approval of this IRM for granular activated carbon for treatment of municipal water wells 5 and 6 in New Brighton, Minnesota. Attachments B-D provide additional information to support the documentation for this decision.

TENTATIVE SCHEDULE

Advise and receive bids	U.S. EPA (CH_2M Hill) Completed
Design and construction of selected IRM	Following bid receipt, tabulation, and recommendation of award

If you have any questions please call Karen Waldvogel at (312) 886-7573.

Attachments as noted

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Attachment A

ADDENDUM NUMBER 1
TO
DRAFT FEASIBILITY STUDY
TEMPORARY WATER SUPPLY
NEW BRIGHTON, MN
MAY 27, 1983

As indicated in a footnote in Section 9, page 9-1, of the subject Feasibility Study, it was anticipated that the activated carbon system supplier, whose equipment and costs were used in the study, would submit a revised proposal. This proposal was received and evaluated and is the subject of this addendum.

The purpose of any Feasibility Study is to evaluate alternatives and recommend the most cost-effective solution to the problem consistent with sound engineering principles and judgement. With this in mind, the referenced Feasibility Study recommended that a temporary pipeline be installed from Minneapolis' Hilltop Reservoir to New Brighton's distribution and storage system at an evaluated cost of $1.76/1,000 gallons of water used. The activated carbon alternative was evaluated at $1.98/1,000 gallons (See Table 8-1).

The carbon system supplier's revised proposal contained several significant additions, at no additional cost, which had the effect of eliminating the previously applied cost contingency of $27,200 (Table 6-1) and reducing their evaluated cost to $1.72/1,000 gallons. The table below summarizes the revised carbon system costs. Refer to Tables 6-1, 6-2 and 8-1 for previous cost figures.

TOTAL COSTS
CARBON ALTERNATIVE (REVISED)

Carbon System Lease	$136,000
Power & Pipe Connections	5,000
Subtotal, Facilities	141,000
Engineering, CM	9,400
Contingency	0
Project Capital Estimate	150,400
O&M Costs	30,526
Total Project Cost	$180,926
Water Rate, $/1,000 gallons (At 105 days and 105 MG)	$1.72

Attachment B

Further, in an attempt to offset the potential risks with the carbon system described in Sections 6 and 8 (pages 6-3, 8-1 and 8-3), the carbon system supplier has proposed to 1) provide an equipment or operational performance bond equal to their proposal price ($136,000) at no additional cost, and 2) provide up to an additional 80,000 lbs of virgin carbon if premature break through of contamination occurs before the 105 day performance period ends.

All of the above considerations, coupled with the New Brighton water department and city council's expressed desire for an activated carbon system over the pipeline alternative, have necessitated a concerted and critical reevaluation of the previous pipeline system recommendation. At this time, based on the available information, the most cost-effective choice now appears to be the carbon system. Further, it is believed that any accompanying risks with this acknowledged novel system design can be offset by the proposed performance bond. Consequently, the recommendation of this feasibility study should be changed from the pipeline alternative to the carbon alternative, subject to negotiation of contract terms with the carbon system supplier.

Subject: Review of New Brighton, MH temporary Water Supply Treatment for Organics Removal

From: JFH, Office of Drinking Water, Region V

To: Russ Diefenbach

We have reviewed the CH2M Hill and Carbon Services, Inc. reports on proposed method of short term treatment of New Brighton drinking water for organic chemical contamination reduction.

It is our opinion that the Engineer's original recommendation of providing an interconnection with the City of Minneapolis water system is the best solution to the problem from a long range standpoint, but there appears to be local political opposition to this alternative.

We have discussed the Carbon Services, Inc. proposal with staff at the Minnesota Department of Health, and we are in agreement that the equipment described will adequately and safely provide ~~the~~ temporary reduction of organic chemical levels in the New Brighton well water.

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Attachment C

New Brighton

CITY OF NEW BRIGHTON, 803 - 5th AVENUE, N.W., NEW BRIGHTON, MINNESOTA 55112 • 633-1533

June 1, 1983

Ms. Karen Waldvogel
U.S. EPA
Region V
230 South Dearborn Street
Chicago, Illinois 60604

TEMPORARY WATER SUPPLY
CITY OF NEW BRIGHTON, MINNESOTA

Karen, enclosed is a resolution adopted by the New Brighton City Council on May 24, 1983 requesting the U.S. Environmental Protection Agency to provide a temporary water supply to meet Summer water needs and stating a strong preference for the carbon adsorption option discussed in the May 26, 1983 draft feasibility study prepared by CH2M Hill.

Thank you for this opportunity to provide City input.

Sincerely,

Leslie Proper

Leslie J. Proper, P.E.
Director of Public Works

mh

Enclosure

cc: Steve Lee, MPCA

Attachment D

RESOLUTION NO 83-69

STATE OF MINNESOTA
COUNTY OF RAMSEY
CITY OF NEW BRIGHTON

RESOLUTION REQUESTING U.S. ENVIRONMENTAL PROTECTION AGENCY TO PROVIDE TEMPORARY WATER SUPPLY AND STATING PREFERENCE FOR CARBON ADSORPTION OPTION

WHEREAS, the City of New Brighton has had several of its water supply wells contaminated with volatile organic hydrocarbons; and

WHEREAS, in order to comply with a directive from the Minnesota Department of Health to provide non-contaminated water to its residents, the City will need a temporary water supply to meet Summer water peak needs in 1983; and

WHEREAS, the U.S. Environmental Protection Agency has funded a feasibility study to determine alternative methods of providing the needed temporary water supply.

NOW THEREFORE BE IT HEREBY RESOLVED by the City Council of the City of New Brighton that the City hereby requests that the U.S. Environmental Protection Agency provide a temporary water supply to meet the City's 1983 Summer water needs; and

BE IT FURTHER RESOLVED that the City strongly prefers the carbon adsorption option outlined in the May 26, 1983 draft feasibility study prepared by CH2M Hill.

Adopted this 24th day of May, 1983.

Gregory B. Harcus

Gregory B. Harcus, Mayor

James F. Winkels

James F. Winkels, Acting City Manager

ATTEST:

Margaret A. Egan

Margaret A. Egan, City Clerk

(SEAL)